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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,451	09/23/2003	Takaaki Tokura	10517/185	9463

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EXAMINER	
ESTREMSKY, SHERRY LYNN	

ART UNIT	PAPER NUMBER
3681	

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/667,451	TOKURA ET AL.	
	Examiner	Art Unit	
	Sherry L Estremsky	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 6* is/are rejected.

7)☒ Claim(s) *2,5 and 7-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9-23-2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because it is longer than 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite because it is dependent on itself. The scope of claims 3 and 4, therefore, cannot be determined.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al., U. S. Patent 5,822,708 in view of Hubbard et al., U. S. Patent 6,319,170.

Wagner et al. discloses a control apparatus which controls a torque of an engine coupled to an input shaft of a transmission during a shift of the transmission (column 1, lines 7-10).

A controller 6 performs torque-down control by which the engine torque is decreased by a predetermined amount (the amount required to achieve the predetermined value; column 5, lines 24-35). The controller determines, during the torque-down control, a torque-restore control starting point at which time torque-restore is to be started. The starting point is the point at which the absolute value of the speed differential of the involved gear shift elements (clutch halves) becomes less than a threshold (the bottom, right fork of the flow chart in figure 6). The controller starts the torque-restore control at the torque-restore control starting point so as to gradually restore the engine torque to a value before the torque-down control, or "the torque is scaled back to its original value" (column 5, lines 47-48).

The controller is adapted to determine the torque-restore control starting point according to a fuzzy algorithm, which models the behavior of the transmission, so that a rotational speed of the input shaft of the transmission at a target point substantially matches a target speed. As described in column 5, lines 36-40 and column 7, lines 6-9, and as exemplified in column 7, lines 40-43, the controller determines the point during the shift at which there is just enough time to bring the engine torque back to its initial value in coincidence with the transmission reaching the synchronizing point (the synchronizing point being the target point and the synchronization speed of the transmission input shaft being the target speed). According to column 7, lines 4-58 and figure 6, it appears that, at the beginning of the shift, the controller uses the fuzzy algorithm to determine the condition (speed differential between shift element halves) that will exist at the torque-restore control starting point, then over time from the start of the torque-down control determines how the current condition compares to the determined condition.
(claim 1)

Figure 6 of Wagner et al. illustrates a control method including the steps of performing torque-down control, determining the torque-restore control starting point, and starting the torque-restore control (column 7, lines 56-58).
(claim 6)

Wagner et al. does not disclose a dynamic model which simulates the behavior of the automatic transmission over time from the start of the torque-down control.

Hubbard et al. discloses a control apparatus which controls a torque of an engine coupled to an input shaft of an automatic transmission during a shift (column 1, lines 7-10). A controller schedules engine torque reduction according to a dynamic model which simulates the behavior of the automatic transmission over time from the start of the torque control (column 4, lines 47-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Wagner et al. to use a dynamic model which simulates the behavior of the transmission in view of Hubbard et al. because "(u)sing the dynamic model to schedule the torque control achieves more consistent shift feel and improved adaptability to different powertrain and vehicle type configurations, and reduces the number of calibrated parameters requiring adaptive correction", Hubbard et al., column 2, lines 17-21.

Allowable Subject Matter

8. Claims 2, 5, and 7-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 3 (being dependent on either claim 1 or 2) and 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent 4,355,550 (Will et al.) October 1982 - discloses controlling an engine to reduce torque at the start of a transmission shift and gradually restore engine torque near the time of gear reengagement.

U. S. Patent 4,770,064 (Kuerschner) September 1988 - discloses a device to control engine torque control timing during an automatic transmission shift.

U. S. Patent 5,072,631 (Fujimoto et al.) December 1991 - discloses engine torque being reduced at the beginning of an automatic transmission shift and being restored gradually according to how the clutch ratio between the transmission input and output shafts compares to various values.

U. S. Patent 5,559,694 (Kraemer et al.) September 1996 - discloses a device which reduces engine torque during a transmission shift and which calculates, in advance, the engine speed anticipated at the end of the shift to regulate the torque reduction to achieve a preset engine speed curve.

U. S. Patent 5,816,976 (Kuroiwa et al.) October 1998 - discloses a device and method for controlling the timing of engine torque reduction control during a transmission shift.

U. S. Patent 6,023,647 (Saito et al.) February 2000 - discloses a control apparatus for determining the timing of the end of engine torque reduction control during a transmission shift based on the rate of change of the vehicle speed.

U. S. Patent 6,364,811 (Hubbard et al.) April 2002 - discloses using "an inverse dynamic model" of a transmission to control engine output torque and on-coming clutch pressure during a shift.

U. S. Patent 6,656,087 (Runde et al.) December 2003 - discloses a control apparatus which controls engine torque during a transmission shift, the engine torque control allowing the transmission input speed to reach a synchronization speed for the target speed ratio at a target time.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherry L Estremsky whose telephone number is (703) 308-2164. The examiner can normally be reached on Tuesday and Friday from 7:30 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (703) 308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SLE

SHERRY ESTREMSKY
PRIMARY EXAMINER
AU 3681 10-26-04